Implementing iPads as Personal Learning Devices: Making the Paperless MBA Possible

Sharon Altena
Graduate School of Business
Queensland University of Technology
sharon.altena@qut.edu.au

Abstract

In 2011, Queensland University of Technology's Graduate School of Business formulated a Digital Learning Strategy and embarked on a three-year journey to transition the Executive MBA from a paper-centred learning environment with paper-based study guides, timetables, forms, textbooks and notebooks to a fully paperless environment by the end of 2014. This paper reports on how iPads have been implemented as Personal Learning Devices (PLD) to achieve the paperless MBA. It discusses the challenges faced, how these have been overcome, key learnings, and recommendations applicable for others considering a paperless classroom through the use of iPads and other tablet technologies.

An action research methodology using focus groups, observations, open-ended informal discussions with students and student surveys has been used to guide the transition to a paperless learning environment. Although this research is still ongoing, preliminary findings indicate that as long as adequate, targeted iPad learning interventions and ongoing support is provided to students, the iPad can be used effectively as a PLD.

Keywords: *iPad implementation, paperless classroom, Personal Learning Device, eBooks, BYOD.*

Introduction

The Graduate School of Business is a commercial arm of the QUT Business School at Queensland University of Technology (QUT). It currently offers five post-graduate programs, one of which is the Executive Master of Business Administration (EMBA). The Graduate School also designs and delivers a number of customized short Executive Education programs that are tailored to the specific needs of corporate and government clients.

The students studying the EMBA program are predominantly male, mid-career professionals, aged between 32 – 50 years of age, which means that our cohort of students includes both digital natives and digital immigrants (Prensky, 2000). Entrance into the EMBA program requires students to have an undergraduate degree and a minimum of 5 years experience, with two of those years being at a supervisory level. The students attend classes one weekend per month over 22 months, with many students flying to Brisbane to attend classes from across Australia, close Pacific nations and Asia. As business executives, a large percentage of our students are mobile and undertake significant travel as part of their work.

Traditionally, the learning materials provided to EMBA students consisted of printed Learning Guides, paper-based textbooks, printed timetables and paper-based forms, all of which were supplied to students as part of their course fees. Blackboard, our Learning Management System, was used to provide access to readings and other materials that students would typically download and print. Students studying an EMBA were required to have a laptop, which was used in

lectures for sending and receiving mail, making notes on PowerPoint slides, accessing web sites and for reading and printing documents.

In May 2011, some 12 months after the iPad 1 was released in Australia, the Executive Director of the Graduate School of Business recognized that the iPad was a game-changer for student learning, in fact what Christensen refers to as a disruptive innovation (Christensen and Overdorf, 2000). He made a decision that the Graduate School of Business should lead the University in the move towards mobile learning through the implementation of iPads for the next intake of EMBA students commencing in January 2012. This implementation was not to be a trial of the iPad, but a full implementation across all 24 units in the EMBA program.

The initial driver for this implementation was the desire to become a more environmentally sustainable program by eliminating the use of paper and reducing the substantial costs associated with printing. Other key drivers included the desire to explicitly demonstrate to students that we truly live up to our tag line of being a university for the "real world". In a similar way to Illinois Institute of Technology and other early adopters of the iPad, "we are a university of Technology" and therefore needed to be at the forefront of technological advancements (Rath, 2010), to explore the potential of the device to support student learning and to do things differently.

Furthermore, as a school within a University of Technology that is developing current and future business leaders, we have an obligation to develop the digital literacy of students for learning and also to develop skills that can be transferred across into their working life.

As a program committed to and highly valuing face-to-face classes and the important networking opportunities an MBA offers students, this initiative was also being implemented to allow us to skip the eLearning phase and leapfrog ahead to mobile learning, drawing on the learning from early pilots happening globally.

Issued with an iPad 2 and a $100 iTunes Gift Card, I was tasked with the responsibility of implementing iPads into the EMBA and asked to “make it happen”.

The objective of this paper is to report on how the paperless MBA has been made possible through the introduction of iPads as a Personal Learning Device (PLD). It discusses the challenges faced, how these have been overcome, key learnings, and recommendations applicable for others considering a paperless classroom through the use of iPads and other tablet technologies as PLDs.

Creating a Plan

It was important to have a clear goal and plan for the implementation of the iPad. Kha suggests that “*Without a specific goal and plan, the iPad has no more impact on the classroom than a cellular phone. Students will use it to chat or to surf. You have to have an explicit plan*.” *(Fuch, 2011)*

From the outset, we viewed the iPad as a Personal Learning Device rather than a learning technology. This is an important distinction. We were interested in investigating three key questions: How could students use the device to assist them with their studies and learning? Can an iPad replace a laptop in the

classroom? Is it possible to achieve a paperless learning environment for post-graduate learners? The iPad as a technology for the lecturer to use in the classroom for teaching was a secondary consideration. This implementation was to be a bottom-up, student-centred innovation that in time would gain traction and momentum and begin to influence up and eventually the classroom practice of academics.

We took a long-term view of the implementation of iPads with the development of a three-year plan that identified a key focus for each year. This does not mean that it precluded other experimental and development activities relating to iPads, but they were not the main focus. This plan was divided into four phases and in keeping with an Action Research Methodology, the learning from each phase was reflected upon and built into and extended into the next phase of the project (See Figure 1.1).

Figure 1: iPads Implementation Plan

Phase 1: Pre-Implementation Learning and Planning

Exploring the Possibilities

Now, some years on, it is easy to forget that the iPad represented a significant change in the way we interact with learning materials and create learning. The iPad was unlike any other device we had previously used. We had become accustomed to PCs, mice and USB sticks, and were now moving to what Murphy refers to as a Post PC era (Murphy, 2011) with a device that relied on

touch and used the cloud rather than physical means to transfer files. The iPad required a re-thinking of familiar workflows to access, transfer and store files, read and make notes on documents, access information and interact with the device.

Initially we examined how students studied and identified three key activities:

- Access to Information and Research
- Communication, Collaboration and Knowledge Construction
- Management of Learning (See Figure 2).

These are similar to the activities identified by Fischer, Smolnik and Galletta (2013) in their study of tablet use in higher education. We explored how these activities could be replicated or extended on an iPad using the new affordances the iPad offers students.

Figure 2: Student study activities

Student trial

In preparation for the implementation of iPads in 2012, a small pilot program as recommended by Chester (Fuch, 2010) was established. The pilot, consisting of six EMBA students (two previous iPad users and four non-iPad users), was established in July 2011 to allow us to investigate the potential of the iPad from a student perspective. The trial lasted for three months with focus group

sessions held on two occasions to get feedback on the iPad, the Apps we had recommended and the Apps students had discovered for themselves. The trial was supported by an initial student workshop, where they were introduced to the device, including setting up email, connecting to the QUT WIFI network, purchasing Apps using the iTunes card, cloud based storage, iPad security, the Apps we wanted them to evaluate and the scope of the project. Additionally, a student iPad website was created to provide support to students. This contained FAQs, reviews of Apps and tip sheets for using selected apps.

Findings from the trial

This trial provided us with four key insights that would be incorporated into the implementation phase.

1. **Need for ongoing student training and support:**

   It was clear that we needed to provide ongoing student training and support if we wanted to change post-graduate student habits. For example, all students in the trial had reported that they experimented with annotating documents using the GoodReader App, however when pushed for time, they reverted back to their old pen and paper habits. Although the trial students saw the benefit in being able to electronically annotate documents, they were not skilled at this and needed to invest more time, which they did not have, to learn these skills.

2. **Cloud-based storage:**

   Students indicated that Dropbox was the most valuable App they used. Some commented that cloud-based storage provided through Dropbox had revolutionized the way they work at university and in their work life.

3. **PDF formatted documents:**

   The trial identified that providing materials in PDF format enabled students to read and annotate documents and PowerPoint presentations on the iPad. We discovered that the iPad did some strange things to some PowerPoint presentations including reversing diagrams or making some slides appear upside down.

4. **Blackboard:**

   Blackboard by default opens document in the same window, which prevents documents from being downloaded into the GoodReader app on the iPad. We discovered that we needed to ensure documents uploaded to Blackboard opened in a new window.

At the end of the trial, students indicated that in order for the implementation of the iPad to be deemed as successful, we needed to "go hard". They recommended that we take away all paper and expose students to as many apps for learning as possible. This advice was the direct opposite of the thoughts of the faculty, who felt that many of the EMBA students were, in the main, not particularly technologically savvy and that we needed to proceed slowly and with extreme caution with our executive students.

Establishment of a BYOD policy

A number of other universities within Australia and overseas such as University of Adelaide, Trinity College at Melbourne University, IMD, IESE, Warton, Illinois Institute of Technology, Stanford, Ohio State University and Seaton Hill

University (Jennings, et. al. 2010, Herrick, 2011, Rice, 2011) were giving commencing students iPads upon their enrolment. We took a different approach based on our view of the iPad as a Personal Learning Device and introduced a BYOD policy. Consequently, students were required to purchase an iPad in addition to the laptop that had been a requirement of the program for a number of years.

Issue of staff iPads

Although the use of iPads by staff was not the main focus of the initial implementation, it was important to provide academics and administration staff working within the Graduate School of Business with an iPad and an iTunes card to enable them to begin to explore the device and new ways of working.

Staff were provided with instructions on how to set up and maintain security of their iPad and were invited to attend a number of workshops designed to highlight the features of the device and some key Apps that they might be interested in exploring further. A staff support web site was also established to provide just-in-time learning and support. Staff were encouraged to use the iPad for work and personal purposes and to explore the possibilities it provided, but were not put under pressure to use the iPad.

Implementation Guidelines

Many academics were nervous and some openly expressed concern about the use of iPads in the program. These concerns included:

- fear that the students would be seduced by the technology

- students would no longer read as it is too difficult to read online
- it is a high-pressure and intensive program and we are now adding another level of complexity for students who struggle with computers
- costs to students of purchasing Apps could be quite considerable
- there may be an expectation for faculty to change their approach.

In response to these concerns a set of guidelines for implementing iPads was developed with the assistance of Program Directors. These guidelines clearly set out the Apps that could be introduced to students, how iPads could be used, the pace of this change and support that would be provided to students and staff. These guidelines were communicated to all staff at a meeting where feedback and input was encouraged.

Preparation of student workshops

In preparation for the implementation, a survey was sent out to commencing students to gauge their previous experience in using iPads. The data collected from this survey was used to tailor student workshops to meet the specific needs of students.

Phase 2: iPad as a PLD Core Skills Development

Student iPad Orientation

As part of the 2012 Orientation program, two iPad training sessions were included, one in the first weekend and one in the second weekend a month later.

The first workshop focused on getting iPads configured for QUT systems, exploring the Apps that come standard with the iPad, setting up email, introducing and setting up cloud-based storage, downloading documents onto the device, transferring files from iPad to computer and computer to iPad, subscribing to the iCloud calendar, iPad security including passcodes and Find my iPad, and backing up data via iCloud and iTunes.

The second workshop focused on teaching students how to use the full features of the GoodReader App and also provided students with a range of tips, tricks and shortcuts for using their iPads.

iCloud Calendar

The iCloud calendar allowed us to create a student timetable of scheduled classes, assessment due dates, two-week and one-week reminders about assessment due dates, details of networking events and reminders about when course fees were due. Once this calendar was created in the Cloud we sent students an email with a link inviting them to subscribe to the calendar. Once subscribed, any updates to assessments or classes were automatically synced to their devices through the Calendar App. This ensured that students and staff always had the latest information. Students are also able to subscribe to the iCloud calendar on their PC or MAC and Android users were able to subscribe through their Gmail account.

Accessing and annotating documents using GoodReader

Students were taught how to download their academic readings, PowerPoint slides and Learning Guides from Blackboard using the GoodReader App, as

well as how to navigate downloaded documents, search documents, bookmark pages, read, annotate and share annotations with others. The sharing of annotations has been particularly helpful to students when working on collaborative assignments. Additionally, students were taught how to use GoodReader to manage and organize files on the iPad including being able to manually or automatically sync updates to documents to either Dropbox or their computer networks.

Dropbox

Students used Dropbox for cloud-based storage and as a mechanism for transferring files from PC/MAC to the iPad. Some students working in groups set up shared folders within their Dropbox as a cloud-based central repository for storing and sharing group files.

Communicating using Mail, Yammer, FaceTime and Skype

At orientation students set up their QUT email accounts on the iPad and were shown how to manage their email, including the use of multiple email accounts on the one device. Students were also provided with access to Yammer, a private social networking tool used to create a learning community, facilitate knowledge construction and communication amongst students when they were off campus and to also facilitate communication with staff. During the year as the need arose, students were introduced to both FaceTime and Skype to facilitate communication and collaboration with their peers and as a mechanism for allowing team members to join face-to-face meetings remotely.

Self-Publishing

In the process of transitioning to a paperless MBA, we began exploring how to self-publish our own Learning Guides for student use on the iPad. Initially we explored the use of iBooks Author, which is a robust, easy-to-use tool with many additional third-party widgets available to further increase the interactivity of eBooks. However, at the time, eBooks developed using iBook Author could only be read on an iPad, not even on a Mac, hence we decided we could not use the tool.

We also explored the use of InDesign and Adobe's Digital Publishing Suite, but found that the learning curve was significant and required specialist skills that academics and administration staff did not have. A number of iPad eBook authoring Apps such CBB were tested but we found that the books generated were not ideal for our purposes. Other free applications or low cost applications that allow the creation of eBooks such as Calibre and Nameo were tested, but they did not allow the creation of fixed layout eBooks. As a graduate program for executives, it was important that the eBooks we produced were high quality and visually appealing.

Although the creation of PDF documents using Adobe Acrobat Professional does allow for including interactivity and embedded videos, the underlying engine is based on Flash, which of course does not work on an iPad. After evaluating the range of options, we eventually settled on creating PDF versions of Learning Guides generated from Microsoft Word. By combining standard Microsoft Word tools such as bookmarks and hyperlinks we were able to include navigation within the eBook, as well as interactivity such as videos, quizzes and links to external documents. These interactive PDF documents,

combined with the power of the GoodReader App, have allowed us to create fixed layout eBooks that have all of the typical features of eBooks.

Evaluation of the first year

Over the course of the first year we learned a great deal about the iPad through informal feedback from students and our own observations. Six months into the program all students were invited to participate in an EMBA review forum to provide feedback on their experiences of the EMBA program. As part of this forum, students had the opportunity to provide initial feedback on the use of iPads. Students indicated that most of them were using the iPad and they certainly appreciated the portability of the device, but feedback indicated that progress was too slow and that we needed to use it more for them to get the benefit of their investment in the device. One student quoted that "*it was like having a Ferrari and only being able to drive it in first gear*". Essentially, our implementation guidelines had put the brakes on what we could do in the first year. Bottom-up innovation driven by students required us to use a revised approach for the second year of implementation.

Phase 3: Extending the iPad as a PLD and Content Creation Device

New Approach to Student Orientation

Student feedback from the first year of implementation required us to re-evaluate how we introduced iPads to students. It was Everett Rogers (2003) who said that "*people are more likely to adopt an innovation if they see the advantage of the new strategy relative to what they currently use*" (Roblyer, 2005, p. 197). With this in mind we set about identifying the WIFM (What's In It

For Me) factor. What is it that the iPad does really well that computers don't? For us, in our context, that factor was introducing eBooks to replace paper-based textbooks.

Early Bird Clinic

An Early Bird Clinic was added to the orientation program for the second year that was supported by QUT IT Help Desk staff. The purpose of this Early Bird Clinic was to get the iPad set up prior to the workshops. This included setting up email, Apple IDs, Dropbox accounts, Amazon accounts, connection to the QUT network and the purchasing key apps to be used in the workshops. We provided students with a checklist of tasks they needed to complete and step-by-step self-paced instructions for how to accomplish the tasks.

Student Workshops

The first workshop still focused on the iPad as a PLD but now we had more time available to demonstrate the power of the iPad through the introduction of eBooks and the Kindle App - this created the WIFM factor. Students were able to see how they could highlight and make notes in their eBook, have their notes backed up to the Amazon web site, share notes, search their book to locate quotes for assignments, and showed how the eBook, notes and highlights were synced across their iPad and computer. They could immediately see the affordances that eBooks offered them that were not available in paper books (p-Books).

The Bump App was also used as a "fun" activity for students to share their contact details with others, and certainly created a buzz in the room. We also

integrated a number of activities using QR Codes to show students how to use their devices to read codes that gave them access to task descriptions, web sites and surveys.

The second workshop again focused on the GoodReader App, since this is a core App used in our program. Students were introduced to the Vbookz PDF App that reads PDF documents aloud, enabling students to listen to their PDF documents when travelling or exercising. For the busy executives in our program this created the WOW factor. The second workshop also allowed us to introduce students to FaceTime and Skype where they could see immediate uses in their studies, business and personal lives.

eBooks

The second year of the project has really been the year of the eBook. We have managed to negotiate with publishers and to establish workflows that allow us to purchase the eBooks for students and distribute them to their devices. We have managed to narrow down the number of eBook readers to just three (Kindle, iBooks and VitalSource) and students have received training and support in the use of these readers. Next year we hope to use only two eReader platforms. There have been a couple of students who have resisted the use of eBooks, but we have stayed strong to our commitment to the paperless learning environment and have provided additional support to assist them with this transition. We have been able to work with one of our students who has a visual impairment to use the accessibility features of the iPad to help him to overcome this hurdle.

By the end of the third year of the Digital Learning Strategy we expect to have completely moved across to eBooks for all 24 units in the program.

Self-Publishing

In the second year, we further explored the possibilities for self-publishing with our student handbook (EMBA Survival Guide), International Tour Workbook and student Learning Guides in an interactive PDF format. We had great success with this and the students have responded very positively to our ability to leverage the functionality of GoodReader, an App they are very familiar with, to make highlights and notes, hyperlink to solutions, include interactive quizzes and create a stylish, visually appealing eBook with clear diagrams, images and colour. This has certainly made a difference in the quality of the materials we produce for student learning.

From our perspective, these Interactive PDF eBooks have been a great solution as they are simple and relatively quick to create and do not require specialist design skills or a steep learning curve. Importantly, it allows us to create documents in a format that can read on any device, including phone, Android, PC or Mac.

Electronic Forms

In our quest to become a paperless learning environment, we have started trialing the use of forms that are electronically distributed to students. The form is completed on the iPad and by tapping on the embedded submit button, an email is automatically generated with the completed form attached and emailed to the academic. Initially this was used for student peer feedback forms and is

now being trialled with Criterion-Reference Assessment Sheets (rubrics for grading student assessment).

Apple TV

For a number of academics the Apple TV has been the WIFM factor. They are now unchained from the lectern and can move freely around the classroom whilst displaying the content of their iPad remotely via the data projector to the class. Apple TV is a simple technology that allows academics to work in a new way. They are also finding Apple TV to be a useful tool for students to showcase their group work from their iPads to the class, from their chair.

Web Conferencing

In expanding the capabilities of the iPad we have been testing a range of web conferencing tools for the iPad. The chosen tool is Fuzebox. This is a full functioning web conferencing tool and unlike many other iPad web conferencing tools allows you to host a meeting or webinar directly from the iPad, wherever you have internet access. All other web conferencing apps only allowed you to participate in meetings from the iPad. The version of Fuzebox that we have purchased allows us to have ten people in videoconferences and up to 100 participants on audio in a meeting.

We are also looking at using Fuzebox for webinars and student group consultations with academic staff, as well as a teaching tool for units relating to the management of virtual teams and virtual team negotiations.

Recording Learning and Content Creation on the iPad

Students this year have been using their iPads to record their learning electronically through note-taking, recording their reflections and with video and photographs. Some students have recorded their class presentations using the iPad, to allow them to playback and review the presentation for extending their learning. Students are also taking photos of whiteboard notes that can be shared with peers.

A couple of academics have changed their assessment tasks to include more creative, content creation tasks such as Digital Stories or Videos using the iMovie or Explain Everything Apps instead of, or as a supplement to, a traditional academic paper.

Evaluation of the second year of implementation

An evaluation of the second year of the iPad program has just been conducted using a student survey that was sent to all 25 students who commenced their EMBA program in January 2013. The survey was designed to find out how students are using the iPad as a Personal Learning Device and whether the iPad could replace a laptop in the classroom.

The 14 students who completed the survey indicated that overall they had a very positive experience using the iPad as a Personal Learning Device. The ease of use, flexibility and portability of the iPad were identified as the greatest benefits for students. One student commented "*It is portable and lightweight when travelling. I can take it anywhere and it is more convenient than carrying a bag full of textbooks*". The majority of students are taking what they have

learned about the iPad and are applying it to their work and/or personal lives. Students are predominantly using the device for accessing information and research purposes followed by management of their learning. At this stage, students are not strong users of the iPad for content creation, which is an area that we will focus on in the next phase of the project.

The majority of students indicated that they felt there was still a need for a laptop in the classroom, which supports our observations that the majority of students are using both the laptop and iPad in the classroom.

Phase 4: iPads in the classroom and Mobile Learning

We have already been experimenting and exploring with some faculty how the iPad can be used in teaching. However, 2014, our third year of implementation, will be the year of iPads in the classroom. We intend to investigate ways that the iPad can be used to actively engage students in learning and the more effective use of the iPad as a content creation and collaboration device.

We are also looking at extending our work with self-publishing and the creation of learning materials through video and screen capture apps as well as exploring mobile learning development tools, which will enable us to deliver more interactive and engaging learning experiences for post graduate students.

Challenges faced

The implementation of iPads within the EMBA program has not been without its challenges. There have been many obstacles that we have had to overcome including:

IT Infrastructure

The QUT WiFi network already had the capacity to cope with traffic from students' use of laptops and iPads, as we were only dealing with small numbers of part-time students. Where we did have issues was in arranging access and the security required by some of the apps we wanted to use such as Blackboard Mobile, Idea Flight, Keynote Remote and Apple TV. IT Services blocked the use of these apps on the QUT Network due to security reasons or incompatibility issues with QUT systems.

Twelve months later, most of these issues were resolved by accident rather than good planning. The Graduate School of Business was renovated, which included the installation of a separate WiFi network to provide corporate clients attending short courses or conferences with Internet access. This separate network meant that we could use Apple TV and other Apps previously blocked by IT Services. The one App that we are still not able to use is Blackboard Mobile but we are continuing to work on getting this resolved.

IT Help Desk Support

Although we did notify the IT Services and IT Help Desk of the iPad launch, in hindsight we did not work as closely with the technical support teams as we

should have in the first year. The IT Help Desk tried to assist students with issues relating to their iPads, but the technology at the time was very new and technicians were not across the iPad and the problems students would face. This resulted in the Graduate School of Business having to be the de-facto iPad Help Desk, which significantly added to our workload, especially in the first couple of months of the implementation.

iCloud Calendar issues

Just prior to student Orientation, we discovered issues with the QUT web-based Microsoft Outlook email client that prevented students on their PCs from being able to subscribe to the iCloud calendar. Although the calendar integrated seamlessly into the calendar App on the iPad, it was important for us to demonstrate to students how the iCloud calendar would also sync with their other devices. This was eventually resolved with the help of the IT Services team.

QUT email

QUT by default uses a web version of Microsoft Outlook for student email. The process for setting up this email on the iPad is not simple and involved numerous steps, requiring students to switch between their Settings and Safari Apps. Although we managed this effectively in the pre-implementation trial when working with only six students, we underestimated the challenges in trying to assist 30+ students all at once. Needless to say, it was chaotic. Email is such a critical App to set up as without email on the device, students are not able to get an Apple ID, purchase Apps or set up Dropbox.

In the first year of implementation, we found the QUT Web-based Outlook client to be problematic. In the second year we resolved this issue by ensuring students set up a Gmail account and redirect their QUT email to this account. The selection of a Gmail account over other free email accounts was made on the basis that if we required students to upload videos to YouTube they would already have a login and would not be required to create yet another account. The adoption of a Gmail account made the whole process of setting up iPads much smoother and also removed the issues we had experienced earlier with the iCloud calendar.

The Challenges of a BYOD policy

The adoption of a BYOD policy meant that the purchase of an iPad was only a recommendation and not a requirement. This decision raised two issues. Prensky (2012) highlights that pressure to use the devices, once schools have invested in them, is extremely high. We found that the pressure is significantly more if students are purchasing the devices themselves. We had not been clear in setting expectations at the beginning of the year. Students were purchasing the iPad; they had a much higher expectation that the faculty would use the iPad in the classroom. It was also expected that we would roll out Apps at a much quicker pace but we were constrained by the guidelines we had set.

The second issue relating to the BYOD policy was that some students decided to purchase an Android device. This added an extra layer of complexity when trying to assist students to set up their devices during Orientation and had flow-on effects when selecting Apps for students.

eBooks

Initially publishers were only willing to provide us with eBooks that had a 12-month license, after which the eBook would be disabled and the notes and annotations would be lost. We provide students with textbooks as part of their course fees and when we provide a p-book the students are able to use and refer to it for life and are able to sell their book if they no longer want it. We could not understand why an eBook, which was only slightly cheaper and in some cases the same price as a p-book, could only be used for 12 months, especially as our EMBA program was a 22 month program and some of our units used the same textbook. It would be possible for us to have to purchase the same textbook twice for each student. This impasse had the potential to restrict our ability to implement eBooks using only Kindle or Google eBooks, as these did not expire.

We managed to resolve this by negotiating with a publisher for a lifetime eBook license. This then allowed us to negotiate with other publishers and in 2014 all of our textbooks will be available as lifetime eBooks.

10 Recommendations for implementing iPads

1. **Have a clear a plan:** What is the purpose of your iPad implementation? What is it that you want to achieve? What is your 1 – 3 year plan for this implementation? How will you evaluate whether you have been successful? Will you have a BYOD policy or provide iPads to students? Ensure that you clearly communicate your goals to both staff and students to ensure that expectations are managed.

2. **Get a support group:** Find some like-minded passionate people with whom to collaborate and explore the potential that iPads offer for learning.

3. **Work with the IT Services and IT Help Desk staff:** Ensure that the infrastructure of the university is able to handle the increased volume of connected devices. Work with the IT Services team to identify blockages such as network security, restrictions on Apple products, etc. and develop workarounds to these issues in advance.

4. **Thoroughly test the Apps:** There are over one million apps available for the iPad and this can be quite overwhelming for students. It can also be expensive to purchase apps that do not live up to their promise. Identify those that best suit your learning environment and thoroughly test and evaluate the functionality these apps. Our testing of apps against set criteria has enabled us to identify some outstanding apps, with many being able to be integrated with other apps.

5. **Get Faculty on board:** Faculty are the key to the successful implementation of iPads into the classroom. For a number of them, iPads represent a significant change and challenge to their current classroom practices. Staff need to be supported to incorporate iPads into the classroom. Although we have conducted a number of workshops for staff, by far the most effective way has been to provide 1:1 support to faculty.

6. **Don't underestimate the WIFM (What's In It For Me) factor**:

   Understand your students and staff; identify the Killer Apps that will make them see the value of this device for learning and start with them first. What is it that the device can do that will make their life easier?

7. **Allocate sufficient time in Orientation to support students:**

   As reported by Woodcock, Middleton and Northcliffe (2013) in their study of the use of smartphones, many students will use their iPad for email, searching the web, playing games and social media but few are using them for learning. Even those who are already using Apps such as GoodReader, in my experience, are not exploiting the full potential of the App and are surprised when introduced to the full functionality supported.

8. **Provide JIT Support for Students and Staff:**

   Throughout the students' program, schedule follow-up work in the use of specific Apps that will be used in the classroom, e.g. the use of iMovie just prior to the students needing to create a Digital Story for a Leadership unit, or the use of Simple Mind+ just prior to their Problem Solving class, or the use of the VitalSource Bookshelf reader prior to students being issued with an eBook using this platform.

   The provision of self-access resources to support students and staff in their use of iPads cannot be underestimated.

9. **Evaluate! Evaluate! Evaluate!**

   It is critical to regularly evaluate the use of iPads to allow you to see if you are meeting the needs of students and are able to use the feedback provided to further refine the implementation.

10. **Go Hard and Just Do It**.

Conclusion

The iPad in our context has become the Swiss Army Knife of Learning – a mobile, lightweight, quick to set up and use, multi-functional device. Its introduction will have allowed us, over a three-year period, to transition from a learning environment reliant on paper to one that is entirely paperless. The portability and flexibility of the iPad and our desire to better meet the needs of our Executive students has been our impetus and catalyst for change.

Whilst we accept that our approach to implementing iPads may seem quite slow and measured compared to other implementations (Cavanaugh et. al., 2012), our approach has been specifically designed to change behavior, reduce the learning curve and to find the most efficient ways to use the device for mature, mobile, busy executives who are studying a post-graduate program. We believe that we have been successful in meeting the goals of our iPad implementation.

Although the implementation is ongoing, our initial conclusions are that the iPad *can* be effectively used as a Personal Learning Device. Mature-aged students need support to learn new workflows and how to maximize the potential of the

device, eBooks and Apps. Although the iPad is a powerful device and its functionality has greatly improved since the introduction of the iPad 1, at this stage it is still not a replacement for a laptop, but the iPad certainly increases mobility and the flexibility to work anywhere, at any time, on any device. Students have become multi-device learners.

Planning is currently underway for Phase 4 of the implementation in 2014 to explore the use of the iPad in the classroom and opportunities to engage students in using the iPad as a content/knowledge creation device as well as exploring more sophisticated approaches to interactive eBook Learning Guides including learning analytics and the development of custom mobile learning apps to support Executive MBA students.

Evaluation of iPads in the EMBA program is continuing. A new cohort of EMBA students commencing in 2014 will provide us with the opportunity to apply and extend our new learnings for further improvement. It is planned to undertake a formal evaluation of the entire program at the end of 2014 once our current cohort of students has completed their program. This will evaluate the extent to which the goals of the Digital Learning Strategy have been achieved and whether this is a sustainable model for extending the implementation into other areas of the Business School or other faculties within QUT.

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